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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/074,180 | 02/12/2002 | Walter Lange | Mo6874/LeA 34,067 | 7005 |
| 34947 | 7590 | 06/25/2004 | EXAMINER | |
| BAYER CHEMICALS CORPORATION PATENT DEPARTMENT 100 BAYER ROAD PITTSBURGH, PA 15205-9741 | | | OH, TAYLOR V | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1625 | |
| DATE MAILED: 06/25/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,180

Applicant(s)

LANGE ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Final Rejection

The Status of Claims

New Claims 10-15 are pending.

Claims 10-15 have been rejected.

Claims 1-9 have been canceled.

Claim Rejections - 35 USC § 112

The rejection of Claims 1, 5, and 7 under 35 U.S.C. 112, second paragraph has been withdrawn due to the modification made in the amendment.

Claim Rejections - 35 USC 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. The rejection of Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated clearly by Novelli et al (WO 00/08023) has been withdrawn due to the modification made in the amendment. However, a new claim 15 in the amendment can be still rejected by Novelli et al (WO 00/08023).

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2. The rejection of Claim 7 under 35 U.S.C. 102(b) as being anticipated clearly by Coulton et al (WO 00/07993) has been withdrawn due to the modification made in the amendment.

3. The rejection of Claim 7 under 35 U.S.C. 102(b) as being anticipated clearly by Brouwer et al (US 4,979,982) has been withdrawn due to the modification made in the amendment.

4. The rejection of Claim 7 under 35 U.S.C. 102(b) as being anticipated clearly by Kelley et al (US 5,708,033) has been withdrawn due to the modification made in the amendment.

Claim Rejections - 35 USC § 103

5. Applicants' argument filed 3/21/2004 have been fully considered but are not persuasive.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Saumitra et al (J. Chem. SOC. PERKIN Trans, p. 1943-1944, 1993) in view of Kikukawa et al (J. Org. Chem. 1981, Vol. 46, No. 24, p. 4885-4888) .

Saumitra et al discloses a method of preparing a halogenated cinnamate compound by reacting arenediazonium tetrafluoroborates with an olefin in the presence of 1-2 mol% of Pd(OAc)₂ (see page 1943, left col. lines 24-32). For another example, a solution of NaNO₂ in water was added to a mixture of p-anisidine (8.13 mmol) in 42% HBF₄ (20.62 mmol) ; ethyl acrylate (11.13 mmol) and Pd(OAc)₂(0.5 mmol) were added to the mixture under heating , thereby obtaining the desired product (see page 1944, left col. lines 20-28).

However, the instant invention differs from the reference in that at least two of the substituents on the phenyl ring are halogen in the starting material .

Kikukawa et al teaches a method for phenylation of olefins by aniline under palladium catalysis (see page 4886, table III), during which a diazonium salt is formed in situ (see page 4887, right col. , lines 15-18). Furthermore, different forms of palladium complexes, such as , palladium (II) acetate (see page 4887, right col. , line 5), tetrakis (triphenylphosphine)palladium (see page 4887, right col. , line 20) can be applied to the method. Moreover, Kikukawa et al indicates that the current method offers several advantages: high product yields under mild conditions and tolerance of substituents on both olefinic substrates and arylamines (see page 4887, right col. ,line 31-34).

Saumitra et al does disclose the method of preparing the halogenated cinnamate compound by reacting arenediazonium salt with ethyl acrylate in the presence of $\text{Pd}(\text{OAc})_2$, and similarly, Kikukawa et al does teaches the method for phenylation of olefins by aniline in the presence of palladium (II) acetate catalyst; also, the Kikukawa et al method makes it possible to add substituents such as chlorine (see page 4886, table II) on the arylamine compounds. Both references are directed to the preparation of the halogenated cinnamate compound. Therefore, it would have been obvious to the skilled artisan in the art to have motivated to incorporate the Kikukawa's et al teaching of tolerance of substituents on arylamines into the Saumitra et al method in order to prepare the polyhalogenated cinnamate compound.

Applicants' Argument

Applicants argue the following issues:

- a. The combination of Saumitra et al with Kikukawa et al would not have been motivated to modify the teachings of these documents to make the current invention;
- b. The none of the Saumitra et al with Kikukawa et al teach Applicants' compound (III');
- c. The present invention produces polyhalogen-substituted cinnamic acids and cinnamic acid derivatives in high yields without adding bases, arylphosphanes, along with no special solvent such as dimethylformamide ; and
- d The present invention provides yields of up to 95 % (e.g. example 5), whereas the process of Saumitra allows yields of 75 % and the Kikukawa et al process allows a low yield (58 % for 2-chlorocinnamic ester).

Applicants' arguments have been noted, but the arguments are not persuasive.

First, regarding the first argument , the Examiner has noted applicants' arguments. However, there is a motivation to combine both Saumitra et al and Kikukawa et al references because both have been dealt with the method of preparing the halogenated cinnamate compound by reacting arenediazonium salt with ethyl acrylate in the presence of Pd catalyst; furthermore, the Kikukawa et al method makes it possible to add substituents such as chlorine (see page 4886, table II) to the arylamine compounds. Therefore, it would have been obvious to the skilled artisan in the art to have motivated to incorporate the Kikukawa's et al teaching of tolerance of substituents on

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arylamines into the Saumitra et al method in order to prepare the polyhalogenated cinnamate compound.

Second, regarding the second argument , the Examiner has noted applicants' arguments. However, the Saumitra et al and Kikukawa et al references may not teach the exact compound structures, but Novelli et al (WO 00/08023) does teach the exact compound structure as shown in claim 15.

Third, regarding the third argument , the Examiner agrees.

Fourth, regarding the third argument , the Examiner has noted applicants' arguments. However, applicants did not claim that the yield has to be at least 95 %. Therefore, applicants argument is unrelated to the claimed invention

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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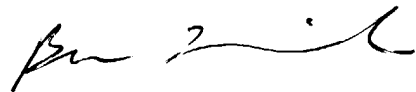
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached from 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mckane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*** Taylor Victor Oh
6/21/09



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PRIMARY EXAMINER
GROUP 1200/1625